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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,953

09/12/2005

Subagyo

71661

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23872 7590 01/31/2008
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EXAMINER

ZHU, WEIPING

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

01/31/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,953	Applicant(s) SUBAGYO ET AL.	
	Examiner Weiping Zhu	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/11/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bharati et al. ("Multivariate Image Analysis for Real-Time Process Monitoring and Control" Industrial and Engineering Chemistry Research, vol. 37, 1998, pages 4715-4724) in view of Stofanak et al. (US 6,197,086 B1).

With respect to claims 1 and 7, Bharati et al. discloses a multivariate image analysis for real-time process monitoring and control comprising (page 4718, right-hand column, paragraph 3 – page 4719, left hand column, paragraph 3.1):

building a multiway principle component analysis (PCA) model on a calibration image which contains all types of features one might be interested in detecting using the on-line monitoring scheme;

analyzing the image to develop image masks in the score area which correspond to each feature in the image space that one desires to monitor;

applying the fixed PCA models to the new on-line images as they are taken;

computing the dominant principle components t_a (i.e. score vectors t_1 and t_2 as claimed);

updating the pixel densities in the score space for the new images; and
monitoring the changing pixel densities under each mask area in the score plot to
track the appearance and disappearance of each feature in the current image.

The process steps of Bharati et al. read on the claimed process steps in the
instant claims 1 and 7.

Bharati et al. does not disclose the claim limitations in the preambles of the
instant claims 1 and 7. Stofanak et al. ('086 B1) discloses a method for on-line detecting
molten slag in a tap stream between a steel making vessel and corresponding ladle
(abstract). It would have been obvious to one of ordinary skill in the art at the time the
invention was made to apply the real-time monitoring and control process of Bharati et
al. in the application of on-line detecting molten slag as disclosed by Stofanak et al.
('086 B1) with expected success, because Bharati et al. discloses that the multivariate
image analysis allows for the rapid monitoring, detection, and isolation of process faults
and product quality in industrial processes (page 4715, right-column, 1st paragraph),
which would include the process as disclosed by Stofanak et al. ('086 B1). See MPEP
2144.05 I.

With respect to claim 2, Stofanak et al. ('086 B1) discloses that the molten
phases include molten steel and slug (abstract).

With respect to claims 3 and 4, Bharati et al. discloses that the image data is
collected in multiple spectral bands (page 4715, right-column, 2nd paragraph), which
reads on the claim limitation of the instant claim 3 and that the image used consists of 4
wave length bands (page 4717, left-column, paragraph 2.1), which is within the claimed

number of wavelength ranges. A prima facie case of obviousness exists. See MPEP 2144.05 I.

With respect to claim 5, Bharati et al. discloses a color-coded $t_1 - t_2$ score plot of the satellite multivariate image in Figure 5 (page 4717, right-column), which reads on the claimed features.

With respect to claims 6 and 8, Stofanak et al. ('086 B1) discloses that the characterizing property is steel and/or slug phase identification of the molten phase (abstract).

Conclusion

2. This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WZ

1/28/2008


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